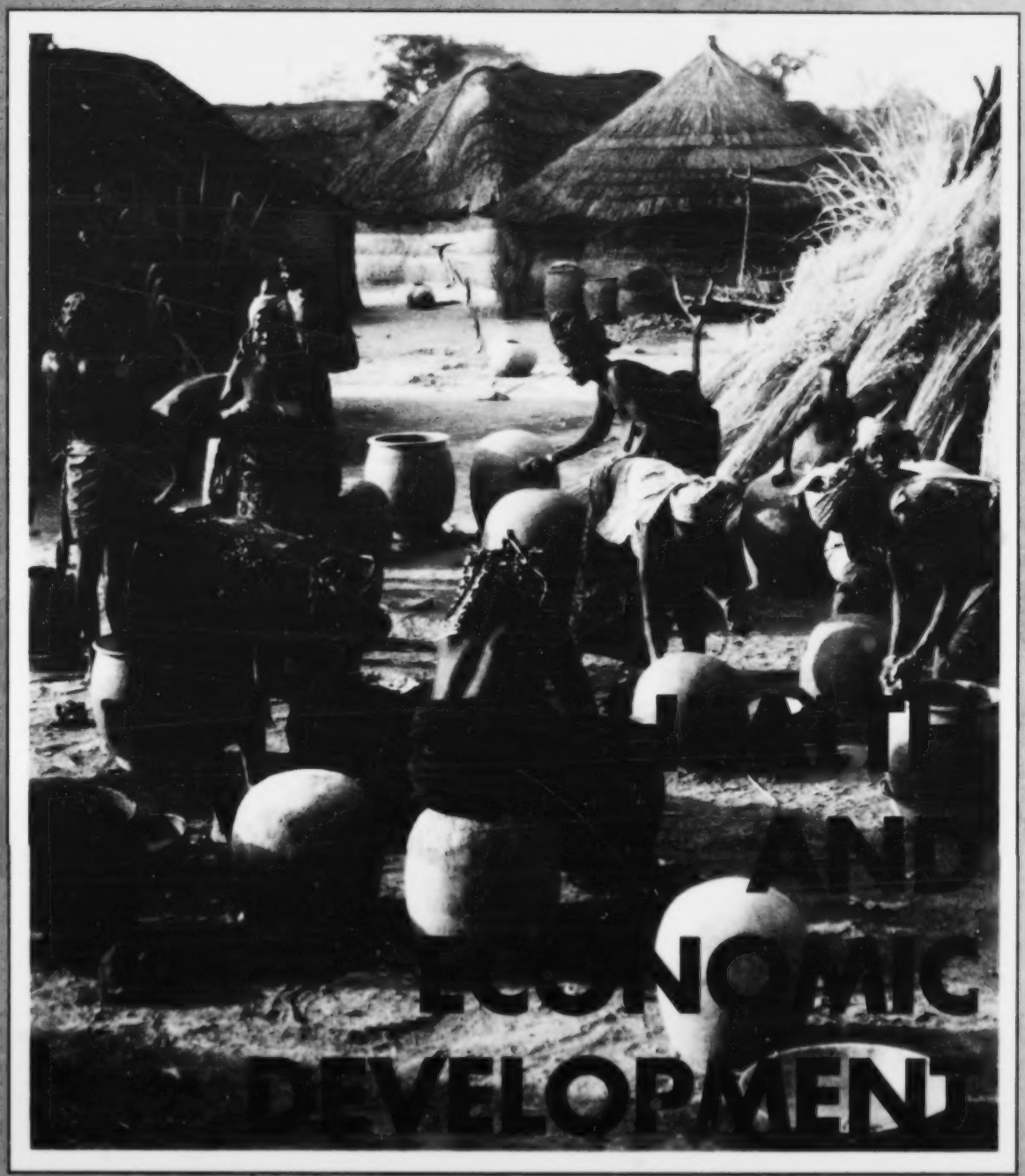
WORLD HEALTH

THE MAGAZINE OF THE WORLD HEALTH ORGANIZATION

NOVEMBER–DECEMBER 1992



WORLD HEALTH
THE MAGAZINE OF THE WORLD HEALTH ORGANIZATION

In this issue

Health and economics: two sides of the same coin 3
Jean-Paul Jardel

"Health is wealth" but also wealth is health 4
Andrew Creese

Poverty and ill-health go hand-in-hand 6
Dorothy Munyakho

Child labour 8
Valentina Forastieri

Health risks of child labour 11
Usha S. Nayar

Rich country, poor children 12

Marketing for health 13
Robert Soeters

Development and vector-borne diseases 15
Hans Verhoef & Robert Bos

Unemployment and health 18
Stephen J. Watkins

Preventing blindness in Zambia 20
John Madeley

Silicosis kills 22
Richard A. Lemen & Terry P. Hammond

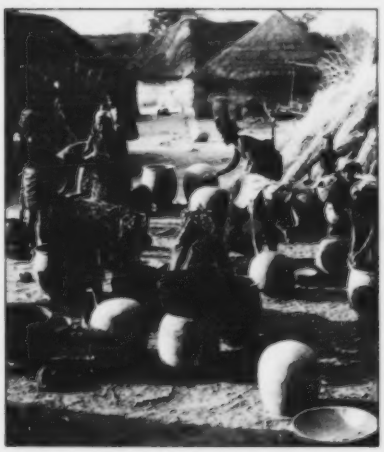
Diseases of affluence 24
V. Ramalingaswami

Undesirable weeds 25
K. N. Panicker & Vijai Dhanda

Ideas for action 26

WHO in action 28

WHO on ... 30



Cover WHO/P. Almasy

page 8

page 22

page 21

World Health ■ November–December 1992
IX ISSN 0043-8502

Correspondence should be addressed to the Editor, World Health Magazine, World Health Organization, CH-1211 Geneva 27, Switzerland, or directly to authors, whose addresses are given at the end of each article. For subscriptions see order form on page 31.

World Health is the official illustrated magazine of the World Health Organization. It appears six times a year in English, French, Portuguese, Russian and Spanish, and four times a year in Arabic and Farsi. The Arabic edition is available from WHO's Regional Office for the Eastern Mediterranean, P.O. Box 1517, Alexandria 21511, Egypt. The Farsi edition is obtainable from the Public Health Committee, Iran University Press, 85 Park Avenue, Tehran 15875-4748, Iran. The Russian edition can be obtained from "Meditsina" Publishing House, Petrovsky per., 6/8, 101000 Moscow, Russian Federation.

Articles and photographs that are not copyrighted may be reproduced provided credit is given to the World Health Organization. Signed articles do not necessarily reflect WHO's views. The designations employed and the presentation of material published in *World Health* do not imply the expression of any opinion whatsoever on the part of the Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Editorial

Health and economics: two sides of the same coin

Jean-Paul Jardel

Dr Jean-Paul Jardel
Assistant Director-General, WHO

Individuals and communities must be given the opportunity to assume far greater responsibility for their own health and quality of life.

The economic recession of the 1980s and its impact on the quality of life in Third World countries highlighted how important health is for development and how essential it is for concern about public health to feature at the very heart of development policies. The fact is that it is no longer possible to meet the soaring costs of health and the emergence of new risks – such as AIDS – unless health is built in among the priority economic objectives.

Health and development are indissolubly linked, and the era when health tended to rate very low in the list of economic targets is past and gone. But a lot remains to be done; the health care services can no longer be left on their own to face up to those new situations, which must be taken into consideration whenever each country constantly reviews its economic objectives.

It was long thought that technical progress would provide the solution to all health problems. That this is not the case is proved by the impact that environmental degradation has had on human health, by the pandemic of AIDS, by the way the much greater mobility of people has encouraged the rapid transmission of diseases, and by the health consequences of modern life-styles. Today we have to find radically new approaches if we are to avoid the present world situation turning into an uncontrollable health crisis.

It is essential for national policy-makers in the field of social welfare to give every citizen much greater decision-making power, especially by ensuring that vulnerable communities have direct access to decisions which concern them. Individuals and communities must be given the opportunity to assume far greater responsibility for their own health and quality of life, by creating a climate that is favourable to well-being and by offering the necessary incentives and support. Independent bodies such as nongovernmental organizations also have an important role to play in making widely available the information and awareness that people must have if they are to make the right choices and take the right social decisions.

This is one of the greatest challenges as we approach the end of the twentieth century. If we show ourselves ready to meet that challenge, the citizens of the third millennium will have the knowledge and the means empowering them to build a society where health – a human right for every man and woman – will be within the reach of all. ■

READEX
FICHE

"Health is wealth" but also wealth is health

Andrew Creese

While poverty causes and perpetuates ill-health, economic growth also entails a multitude of potential health hazards.

Ethiopian refugees. Your life expectancy depends on where you were born

Health and economic development go hand in hand. Whether the focus is on countries or people, those with the highest incomes tend to have the highest levels of health and life expectancy. Eight of the "top ten" countries in terms of per capita income are also in the "top ten" in terms of life expectancy: Canada, Finland, Germany, Japan, Norway, Sweden, Switzerland, and the USA. Most of these countries are also in the "bottom ten" in terms of infant mortality, with rates between five and seven per 1000 live births (data from: *World development report, 1992*, New York, Oxford University Press).

At the other end of the spectrum, the poorest countries and the poorest people have the lowest levels of health. "Rich country, poor children" (page 12) shows how much higher are the risks of ill-health for the poor in one rich country, the USA.

But how exactly does a person's or a country's level of economic development affect health? Firstly, it has to be acknowledged that good health, like most "goods", costs money. Those who can afford to spend more on their health – up to a point – seem to benefit the most. And spending on health is not just about medicines and medical attention, but includes expenditures on building and maintaining a healthy environment, with safe streets and roads, controlled pollution, and safe water. Historical studies have shown that, as people's income grows, their nutritional status improves. They live longer and their children are more likely to survive to adulthood. Prosperity allows communities to improve their physical environment and hygiene.

But prosperity brings its own risks to health, as the articles by Professor Ramalingaswami (page 24) and Messrs Verhoef & Bos (page 15) illustrate. Comparisons among countries show a clear tendency for a fall in the *rate* at which health improves, as the levels of health and income increase. Each additional deutschmark or dollar of extra spending on health buys less, in terms of measurable improvements in health status or life expectancy. One explanation for this could be that potential health improvements are offset by the risks from an unhealthy life-style, with too little exercise, too rich a diet, too much alcohol and too much stress. Another possible explanation is that, once good basic preventive and curative services are in place, the extra cost of saving or prolonging life (particularly where the

average age of the population is increasing) through specialized interventions rises at a disproportionately fast rate in relation to health outcomes. Higher income thus partly explains better health, but also brings new health risks.

Bad health costs money

But the connections between health and money are not just one way. *Bad* health also costs money, to individuals and to countries. Illness reduces activity, whether this is the working time of a chief executive or the daily round of a busy housewife and mother. A day off work is a day's output lost, see box on "Ill-health retards development" (page 21). In industrialized countries, the time lost through illness is often far greater than the time lost through strikes, although strikes typically receive much more publicity. Poverty and ill-health are mutually reinforcing, as the article by Dr Watkins argues (page 18), in a "vicious cycle" in which poor health produces poor productivity, which in turn means low income.

Of course, some improvements in health can be achieved at very little cost. Immunization against measles, use of oral rehydration therapy to treat diarrhoea, blindness prevention by appropriate diet as described in "Preventing blindness in Zambia" (page 20), or enforcing speed limits on the roads – these activities can save thousands of lives at a cost of just a few dollars each. Spending money in such ways constitutes a profitable investment for society, since the savings which result can be shown to be worth many times the cost. Health-related activities can also be directly income-generating in very different ways, as shown in "Undesirable weeds" (page 25) and "Marketing for health" (page 13). Most countries continue to underinvest in the most cost-effective ways of improving the health of their population; there is in fact considerable scope for improving health levels without dramatically increasing overall expenditure.

Poverty causes and perpetuates ill-health. Economic growth allows people greater choice, and more control over their lives. One of the things people choose is better health. Other choices which people make as their income increases contribute to the same things – better food, housing and clothing. But growth also entails potential health hazards – direct risks associated with higher production such as accidents at work, environmental damage, or rapid and unplanned urban growth, and indirect risks resulting from greater affluence. "Health risks from small businesses" (page 10) and "Child labour" (page 8) dramatically illustrate this point.

Paths to healthy growth

"Healthy" economic growth is something which is difficult to achieve. A better economic situation is often a first priority for people and for countries. But this need not lead to a neglect of enriching health investments, such as those mentioned above, nor should it lead to the pursuit of narrow financial objectives which cause damage to individuals' health and to the physical and social environment. Finding paths to healthy growth is a challenge which faces both rich and poor countries.

As a first step, better knowledge is needed about how industrial, agricultural and household consumption processes affect health. Establishing scientific knowledge about the health risks of, for example, exposure to asbestos or tobacco smoke is often a lengthy and controversial process. The results of research in these areas are of value to all countries.

Secondly, achieving healthy growth involves finding ways to regulate health-damaging actions. This may mean that health policies have increasingly to focus on changing both patterns of production (what is produced, where and how it is produced) and patterns of consumption. In several countries, trends in the consumption of tobacco and high-fat foods have shown dramatic changes in recent years as the awareness of health risks has spread. This provides important evidence that people *do* change their consumption behaviour when they are made aware of possible health damage, and when they have alternatives. ■

Mr Andrew Creese is responsible for National Health Systems and Policies, Division of Strengthening of Health Services, WHO, 1211 Geneva 27, Switzerland.

Inequalities in development often reflect whether you have a home or not.

Poverty and ill-health go hand-in-hand

Dorothy Munyakho

Brave moves alone will not provide Nairobi's slum-dwellers with solutions to their sanitation and health problems. Policies need to be revised so as to better meet their needs.

The rugged earth road snaking its way through closely-spaced rows of dwellings built with mud and tin is repeatedly interrupted by muddy pools of foul-smelling water, flowing from open drains. The monotony is broken by mountains of uncollected garbage. Both the stinking puddles and the garbage heaps provide fun for ill-clad, barefooted children in Nairobi's largest slum, Kibera. Since playgrounds are regarded as a luxury even within Kenya's planned residential estates, the children of Kibera are doubly disadvantaged. They are constantly exposed to the hazards of environmental diseases quite apart from accidents with discarded tins and broken bottles. This is the legacy of unplanned settlements spawned by the inexorable flux of economic refugees from the countryside to the cities.

As I pick my way gingerly along the narrow footpaths, the stench of unmanaged excreta is overwhelming. But for 45-year-old Zainabu Asha, a water-kiosk attendant from one of the community's women's groups, the squalor is daily reality, as it is for so many like her. "This is how we live, and life continues", says the single mother-of-four. "Our efforts to get assistance from the city authorities have been frustrated and neglected", she adds.

Although Kibera, located some 10 km south-west of the city centre, has an estimated population of 400 000, the slum has only one public and one private school. The children, aged between four and eleven, who play in the muddy puddles and in the mountains of refuse around Asha ought to be in school. But they are not. The limited number of available school places and the various costs involved rule out any education for many of these youngsters. Cost-sharing in the provision of essential services like education, health, water and sanitation is part of the structural adjustment programmes package that Kenya, like many other developing countries, has to accept.

Where children have no other playground but garbage heaps

Below the minimum wage

For women like Asha, who are single heads of households, the situation is even more complicated as they have nobody to turn to for financial assistance. Apart from the meagre 350 shillings (about US$ 10.90) per month she earns from selling water, which is just about one-third of the government-stipulated minimum wage of about $29, Asha sells vegetables to support her family. "What I get is just enough to take me through the month and pay school fees for Amina (six) and Said (nine). The other two dropped out of school and just stay at home", she says.

Asha's plight is not only typical of Kibera, but of the 78 informal settlements that dot Nairobi's landscape. Because they are unplanned, they are not equipped with the basic services of healthy living. Apart from schools, highly regarded in the country as the key to better living, other basic services are seriously wanting in these urban slums.

Alice Githae, a retired city nurse who now runs a private clinic in Mathare, another of Nairobi's sprawling slums, has chilling tales to tell about sanitation in these settlements. She recounts having to treat a patient with a broken arm who had unknowingly stumbled over faeces packed in a polythene bag. "Due to lack of toilet facilities, people use polythene bags in their rooms and throw the refuse along the paths. This not only causes accidents, but puts everybody at risk of epidemic diseases", she says. They also bathe in their rooms, leaving contaminated water to flow away anyhow. "People who frequent my clinic constantly complain of dysentery and food poisoning", she says.

Pit latrines prohibited

The urban sanitation situation in Nairobi's squatter settlements is complicated by public health by-laws, which ban such settlements. While the illegal nature of the slums denies them official basic services, slum-dwellers are also banned from taking initiatives

within their means to improve their own environment. The ban on pit latrines is an example; in the absence of water-borne facilities, pit latrines are the only viable alternative for safe disposal of human waste.

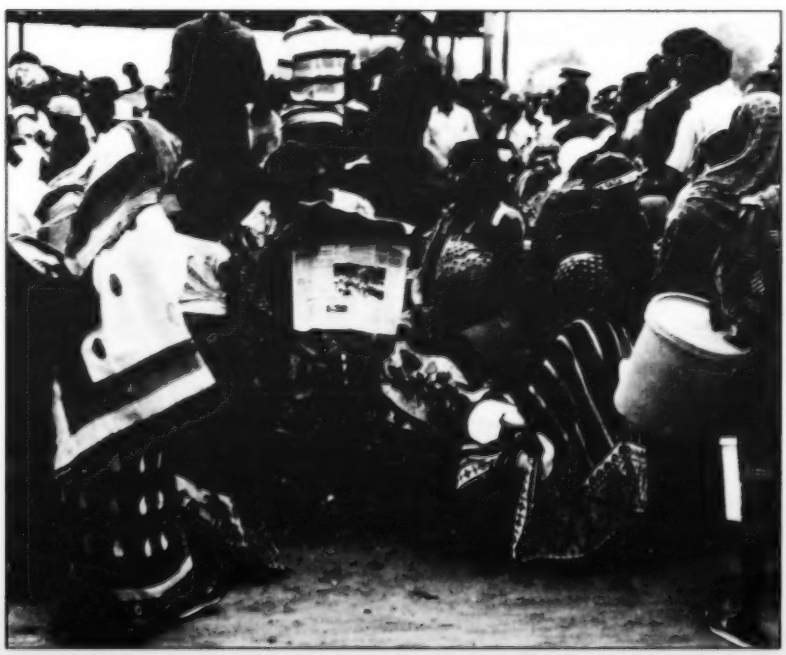
Mr C. Odongo, Chief Public Health Officer in the Ministry of Health, explains that pit latrines are discouraged in areas considered to have "adequate means of treatment and disposal" because of the relatively high recurrent cost of emptying them and the risk of ground water pollution. The fact is that the cost of water installation is often beyond the reach of the city's poor. Mr Odongo has another charge to make against pit latrines. "Availability and cost of land may be prohibiting factors when latrines have to be regularly replaced, particularly in urban areas", he says.

In Kibera, a nongovernmental organization called Kenya Water for Health Organization has "turned a deaf ear" to government protests: it has not only built and demonstrated ventilated improved pit latrines but has also introduced a latrine-emptying service in the slums. The mobile mini-vacuum tank is extremely popular and grossly overworked. At any one time, 30 to 60 people are on the waiting list for the service, which has so far benefited over 20 000 families since June 1990 when it was first introduced.

In my opinion, only brave moves like these – side-stepping archaic by-laws that stifle innovation – have the potential to improve degraded slum environments. Besides, such moves put the destiny of the slum-dwellers in their own hands.

Another nongovernmental organization, the Undugu Society of Kenya, has been a trail-blazer in this kind of approach. Undugu has helped slum-dwellers in Kitui and Kanuku villages of Pumwani, one of Nairobi's oldest slum locations, to set up houses, which – while they do not conform to the rigid standards laid down by urban planners – nevertheless guarantee their inhabitants more decent lives. One of the women's groups in the Undugu programme has not only benefited from such efforts to upgrade the squatter settlements but has also built rental premises on public land to earn them income with which to educate their children.

My personal view is that brave moves alone will not provide the slum-dwellers with permanent solutions and peace of mind. Policies need to be revised so as to better meet their needs. As Elizabeth Mbithi, chairman of the Beba Twende Women's Group in Pumwani, says: "With insecurity of tenure, all this could be demolished at any time." ■



Even where basic services are provided, they may involve long waiting periods

Mrs Dorothy Munyakho is a journalist and Director of the Interlink Rural Information Service (IRIS), P.O. Box 12871, Nairobi, Kenya.

Learning to live better

A number of WHO projects in developing countries have deliberately linked three objectives for introducing functional literacy.

First, the programmes sought to equip women with the knowledge and skills needed to protect and improve the health status of their families. The education included information on nutrition and physical fitness, disease prevention, response to illness, and protection and improvement of the immediate physical environment.

Second, the programmes aimed at providing the necessary information and managerial skills to use all available resources and technology efficiently, so as to increase productivity and raise incomes and purchasing power.

Third, functional literacy was seen as a process of empowerment, since it enhanced the knowledge and understanding needed to identify the sources of their problems and take counter-measures. Literacy also increased the capacity of vulnerable groups to exercise choice and take decisions on matters affecting their well-being, and it created an appreciation of the value of good health as an essential aspect of well-being.

These programmes are multisectoral and multipurpose. By relating the teaching of basic skills to critical factors of vulnerability, functional literacy is a way of giving women the essential knowledge and life skills they need to lift themselves out of their vulnerable condition.

Source: Health dimensions of economic reform, WHO, Geneva, 1992, p. 28.

Child labour

Valentina Forastieri

In spite of overall economic growth, child labour remains a widespread and growing phenomenon in today's world. According to the International Labour Organisation's admittedly conservative estimates, child workers constitute over 18% of all children aged between 10 and 14 in developing countries: at least 7% in Latin America, 18% in Asia and 25% in Africa. Like all averages, these conceal wide disparities and barely reflect the very serious nature of the problem in many countries. The figures tell us nothing about where and under what conditions these children work.

In the developing countries, economic stagnation and unemployment, massive rural migration and accelerated urban growth, aggravated by the rising cost of living, have increased poverty and therefore the incidence of child labour. Many of these children have run away from their families, are orphaned or have been abandoned, and are deprived of adequate nutrition, health care and education. In most cases, they work because the child's wage may mean for the family the difference between eating or not, especially if both parents are not working. In industrialized countries, where there is economic recession and unemployment has increased, traditional forms of child labour have re-emerged. There is increasing concern that the recent structural changes in central and eastern Europe may contribute to the reappearance of child labour in these countries as well.

As child labour is concentrated among those who live in poverty, it usually exists in inverse relation to a country's degree of economic development. However, as long as growth is seen in terms of a higher gross national product, without more equitable income distribution and general adult access to employment, the problem will remain. Poverty is not the only reason for the existence of child labour; shortcomings in the educational system, inadequate regulations to restrict child labour, ineffective enforcement and lack of public awareness are also contributors.

A young worker in Sri Lanka. But why is he not at school?

The priority objectives should be to ban child labour in hazardous conditions, to prohibit unacceptable employment for those too young for the task, and to protect the younger and more vulnerable children.

Working conditions

Child labour can be found in various types of industry and services. Most of the children are engaged in agriculture, but they are also employed in small-scale enterprises as varied as brick-making, food processing, handicrafts and carpet manufacturing; as waiters in bars or restaurants; as domestic servants; as scavengers or rag-pickers in the dump sites of big cities; or in self-employed, marginal economic activities in the streets.

Although many jobs only involve light work, sometimes carried out under the protection of the family, children also work in manifestly hazardous industries such as glass manufacturing, construction, mining and quarrying. For many of them, work is an ordeal characterized by exploitation, excessively long hours, low pay, heavy physical loads,

inadequate working conditions, and exposure to occupational hazards. Physical and psychological neglect and abuse are particularly evident in the cases of bonded labourers and of children working in the streets, where they are exposed to drugs, violence and criminal acts. In hotels, cafes and bars and other places of entertainment where child work overlaps with prostitution, their moral and emotional development is clearly at risk.

Hazards at work

Children's physiological, anatomical and psychological characteristics differ biologically from those of adults and these differences make them more susceptible to hazards in the workplace. They are likely to work in excessively hot, damp, dusty or unsanitary conditions, which favour the transmission of communicable diseases. They may be exposed to toxic chemicals and other hazardous agents, increasing the risk of chemical poisoning and neurological or respiratory disorders. Children are also exposed to work overload, fatigue, stress and ergonomic strain, and these in turn can cause injuries, impaired growth and development, disability and other adverse health effects.

Physically, children suffer from fatigue and exertion much more quickly than adults when exposed to long hours of hard, monotonous work. In malnourished children suffering from vitamin deficiencies, carrying heavy loads can aggravate malformation of the bones. The possibility of contracting chronic occupational diseases, such as lung cancer, is increased when children start working at an early age, since they will have a longer period of cumulative exposure to hazards.

Under pressure simply to survive, children are deprived of education and normal social interaction at the most critical stage of life. They are left with little time to play and explore, to develop family relationships – in short, to experience childhood. Their employment will remain low, and they are likely to spend an entire lifetime doing routine unskilled jobs.

What can be done?

Since child labour is directly related to a country's socioeconomic development, it cannot obviously be eliminated immediately, but eradication should be the long-term objective. Almost all countries have passed national legislation prohibiting child labour in hazardous conditions, or at least have defined the conditions under which children may work. But few countries have achieved full compliance with all the requirements and there are rarely any effective means of enforcement.

The immediate objective should be to promote measures to prohibit the employment of children in manifestly hazardous work because of its potential repercussion on their health, safety and morals. In any case, the most vulnerable and youngest children should be withdrawn from the workplace. Where children have to work, the short-term objective should be to improve their working conditions, and to ensure that they perform their tasks under safe conditions.

Working children need both information and training to develop their skills and their awareness about hazards in the workplace. Improvements such as better working practices, a safer and healthier working environment, appropriate tools and personal protective equipment, rest periods, shorter working hours and no overtime or night work for children, are relatively simple and inexpensive measures, while attention to basic hygiene can improve safety and health.

Health and education

Working children are rarely protected by general health services. Yet innovative locally-available or mobile systems could be designed to cater for

Young Tibetan carpet weaver

These young Mexicans help in their family's copperware workshop

those children working in small enterprises and the informal sector. Many countries already have community-based programmes of primary health services, which could be extended to working children. Community health workers should be trained in occupational health and safety, and should have access to children at work, in order to identify work-related diseases and to provide health care, health education and immunization.

Where there are no available schools, children are more likely to be lured into the labour market. Many parents, illiterate themselves, do not realize the immediate need for attending school. Expansion of primary education and development of alternative skills are essential to ensure that at least young children (under 12 years of age) do not work. Education and training programmes should be designed to provide opportunities.

Since child labour is the product of poverty, it will never be completely eliminated until the socioeconomic conditions on which it thrives are improved. So the progressive elimination of child labour requires a strategy that takes into account long-term and short-term economic objectives, access to employment, increase in living standards, improvements in the educational infrastructures, and efforts to promote awareness of the need for change. Each country will need to work out the most effective policies for protecting children and gradually eliminating child labour. However, irrespective of the country's level of development, the priority objectives should be to ban child labour in hazardous conditions, to prohibit unacceptable employment of those too young for the task, and to protect the younger and more vulnerable children. ■

Dr Valentina Forastieri works with the Working Conditions and Environment Department, Occupational Safety and Health Branch, International Labour Office, 1211 Geneva 22, Switzerland.

Health risks from small businesses

Twenty-two children in Kingston, Jamaica, were treated in hospital for lead poisoning between January 1986 and March 1987. The effects included damage to the kidney, liver, nervous system and reproductive system. Their growth was impaired and their blood formation interfered with. Investigation revealed that the most likely source of exposure was ingestion of soil contaminated by lead fumes or lead dust generated during work in a local repair shop.

Such situations are difficult to control, especially when there are a large number of small businesses. Few developing countries, if any, have the capacity to carry out the necessary field visits and tests to ensure the safety of small enterprises. A more effective strategy would be to incorporate protective measures from the beginning.

When such businesses seek initial capital funding, measures to mitigate any associated health risks could be built into the terms for financial support, for example, by specifying in detail the manufacturing and testing equipment to be used. Then the business would be obliged to take steps to ensure that the equipment is used correctly and risks are minimized. The government's role would be to identify situations entailing the greatest public health risks, and to provide information to local banks on how those risks could best be reduced.

From the International journal of epidemiology, 18: 874-881 (1989), quoted in Health dimensions of economic reform, WHO, Geneva, 1992.

Childhood is a time for learning

Childhood is a time for playing

Health risks of child labour

Usha S. Nayar

Poverty, with its vicious circle of lack of opportunities, is the root cause of child labour.

Children are vulnerable: they should not be exposed to occupation-related hazards

Malnutrition, undernutrition, and low height and weight, with reduced work capacity, are some of the health risks known to be associated with child labour. Although the long-term effects, adverse and otherwise, have still to be studied in detail, children – by virtue of their age and "innocence" – are especially vulnerable to occupation-related hazards. The high incidence of accidents at the workplace due to childish inattention, for example, is a well-chronicled fact.

Several countries prohibit child labour in hazardous tasks or occupations. The catch lies in defining what constitutes being hazardous or dangerous. In Colombia, for instance, hazardous work includes underground (mining) work, painting with substances containing lead sulfate and so on, whereas in Brazil, hazardous work means jobs considered to be morally prejudicial, like working in places of entertainment or selling alcoholic beverages. In India, occupations connected with transport or in workshops using certain industrial processes are considered hazardous. In the Philippines, there is a list of occupations, procedures and industries considered to be hazardous and unsafe for children.

Poverty, with its vicious circle of lack of opportunities, is the root cause of child labour, together with a whole range of other negative spin-offs that seem to be an inevitable result of "progress" in the developing world. It is quite clear that, unless a suitable alternative is provided to working children or until parents and enlightened employers balance the sensibilities of a child with their own basic needs, juvenile employment with all its attendant risks and exploitation will continue.

Some nongovernmental organizations have focused on providing the youngsters with services related to health, hygiene and informal education. Such interventions do build up the child's self-esteem, but their efforts are woefully small. The worldwide nature of trade and increasing commercialism have made countries much more interdependent today. The affluent countries, while making a positive contribution by creating economic and social activity, indirectly foster an unpleasant situation which sacrifices young careers on the altars of profit. It is all done in the name of business.

Traditional businesses, like the carpet, leather and garment manufacturing organizations, continue to employ children and claim that they would rather shut down their business than hire adult labour. A study of the garment industry in the Philippines confirms that the low cost of child labour figures as a percentage of their net profits.

Finding answers to this problem is not easy, but certain measures like compulsory primary education, reasonable monetary compensation, vocational training, and better focused national policies and planning could lead to a more humane and tolerable situation. ■

Professor Usha S. Nayar is Head of the Unit for Child and Youth Research, Tata Institute of Social Sciences, Post Box No. 8313, Deonar, Bombay 400 088, India.

Rich country, poor children

Nationwide, one in every five homeless persons is a child.

Despite continuing improvements in the general economy, the child poverty rate in the USA reached 19.6% in 1989; this means that 12.6 million children now live below the poverty line, an increase of more than 2.5 million from a decade ago. Falling earnings and more families headed only by the mother are the key underlying causes of this phenomenon.

A national health survey carried out by the government in 1988 highlighted the correlation between poverty and health in children.

- Children aged under five living in the poorest families are one-third less likely than children in more affluent families to be in excellent health.
- Poor 5–17-year-olds are about half as likely to be in excellent health as their more affluent counterparts.
- The poorest 5–17-year olds lose 1.5 times more schooling because of acute or chronic health conditions.
- Poor children are twice as likely as affluent children to have physical or mental disabilities or other chronic health conditions that impair daily activity.

Perhaps the most dramatic situations are those facing homeless children, whose numbers increased in the 1980s. Nationwide, one in every five homeless persons today is a child.

In one study of New York City's barrack-style shelters for the homeless, 42% of parents interviewed said that they or their children, or both, suffered from diarrhoea for more than three years. Another study found that homeless children were twice as likely as poor children with homes to have elevated blood lead levels, a condition associated with developmental retardation. In Los Angeles, 23% of homeless parents interviewed said that their children were often or always hungry.

Children's vulnerability manifests itself in different ways:

— abused and neglected children: 2.4 million reported in 1989;
— children born drug-exposed: 375 000 each year;
— children with emotional disorders: 12% of children under 18 in 1989;
— runaway children: 450 700 in 1988;
— homicide victims: homicide is now the second leading cause of death among all adolescents and young adults, and the leading cause among black youths. ■

From The state of America's children 1991, *Children's Defense Fund, Washington DC, 1991, quoted in* Health dimensions of economic reform, *WHO, Geneva, 1992.*

For many children, the street is their home.

Marketing for health

Robert Soeters

An innovative company in Zambia which makes market forces of supply and demand work for health may inspire other countries in their transition to a market-oriented economy.

Distribution of essential drugs in Sudan: an integral part of primary health care.

January 1991 saw the launch of an initiative in the Western Province of Zambia to solve the problem of supply of goods necessary to make the region's primary health care (PHC) programme operational and effective. The "Primary Health Care Foundation Western Province" is a company which applies the market forces of supply and demand in its operations with the aim of improving the health status of the province. It differs from a commercial business in that the profits are reinvested in health-related activities, and discounts are given to health institutions and community groups.

The Foundation operates in an area three times the size of the Netherlands and has a population of 600 000. Western Province is sparsely populated and has a skeleton network of roads, most of which are only accessible by four-wheel drive vehicles. There are 11 hospitals, 109 rural health centres and 300 community health workers. The PHC programme in the province, largely supported by the Netherlands, is involved in community development activities, curative services, training of staff, the supply of drugs, transport, management and financial administration. Training encourages participative approaches by health staff towards the communities' health problems and ways of solving them.

Years of work proved frustrating both for health workers and for the communities. There were no vegetable seeds, farm implements, cement or soap – the kind of essentials needed to carry out development activities. At one point health workers even refused to continue visiting their communities because they knew all they would be asked was whether they had brought the items they had promised during earlier visits.

For health institutions the supply of stationery, bicycle spares, cleaning material and soap was erratic. In the centrally organized distribution system there is little relationship between supply and demand, so that fast-moving items such as bicycle tyres and soap are continuously out of stock, while slow-moving items sometimes pile up. Local business people tend only to trade in a limited number of commodities such as cattle, sugar, cooking oil, clothes and mealy meal (the local staple food) which generate quick profits. Furthermore, the government distribution networks and those between provinces tend to be too complicated and bureaucratic to respond adequately to the demands of the rural areas.

These factors all encouraged the creation and growth of the PHC Foundation. It markets the commodities which the local people need, such as farm implements, seeds and ploughs, to increase food production. It sells cement, and all the equipment required to make hand-dug water wells. It sells stationery, bicycle spare parts and soap at a reduced price to improve the work in health institutions. The company's garage is now the largest in the province; it is open to any customer and offers discounts for health vehicles.

In eight hospitals small retail shops have been built. These shops as well as any other community-oriented private shops receive a 15% discount from the Foundation. The hospital shops in turn sell commodities to the general public and to the health staff from the rural health centres. Health workers can now use the items for their community programmes or for

their own health institutions.

The PHC Foundation is particularly successful in the vegetable seeds market, and provides 80% of all seeds in the province. Vegetable seeds in high demand include rape, cabbage and tomatoes, and on average 2000 packets are sold per month. Throughout the province these seeds are used by individual farmers, as well as village health committees which use their surplus production to generate funds for health-related activities.

Originally set up with donor assistance from the Netherlands, the Foundation is now independent and operates as a commercial nongovernmental organization. The management is recruited from business-oriented people, who are offered relatively high salaries. Their job security depends on their ability to run the company without donor or government assistance. The Foundation's Board consists of health representatives from the six districts in the province, local leading businessmen, representatives of the Ministry of Health and Agriculture, and the Provincial Permanent Secretary.

After 18 months of operations, the Foundation – with 60 employees – already ranks among the top ten companies in the province. Its net profit in the first six months of 1992 was 35%. Besides the commodities already mentioned, building materials (mainly for health institutions) constituted 42% of the total sales in the shops during the first 17 months of operations.

Monthly turn-over (US$)*

Building materials	5000	(42%)
Vegetable seeds	1400	(12%)
Oxen-drawn ploughs and spare parts	900	(8%)
Agricultural pesticides	400	(3%)
Farm implements	400	(3%)
Bicycle spares	1100	(9%)
Soaps	800	(7%)
Stationery	700	(6%)
Other commodities (soft drinks, etc.)	1200	(10%)
Total	11900**	

* Figures calculated from the monthly business volumes February 1991 to June 1992. Figures in parentheses are percentages of the total.

** Revenue PHC Foundation garage and welding unit excluded.

Can the PHC Foundation survive? The business results answer this question quite positively. Furthermore, it has a market advantage over other ordinary businesses in that the objectives and leadership of the Foundation are linked with the main consumers of its services. Today many other countries besides Zambia are struggling to make the transition from a centrally organized to a market-oriented economy. The concept of a Primary Health Care Foundation may be applicable in other parts of the world. ■

Creating a market-oriented economy for communities can help to boost health action.

Dr Robert Soeters has, since 1988, been the Coordinator for the Netherlands-supported PHC programme in Western Province, Zambia. His address is 85 Frobisher Court, Whiteacre, Graham Park, London NW9, UK.

Development and vector-borne diseases

Hans Verhoef & Robert Bos

Decisions on water resources development have to weigh a possible deterioration in local health conditions against the expected benefits of food security, employment and stimulation of the local economy.

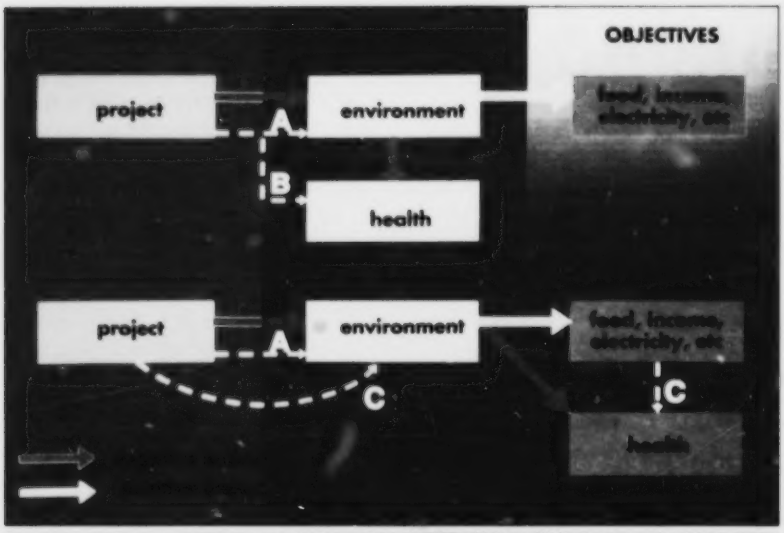
Water: a source of life – provided it is safe

Development invariably leads to changes in the status of human health. Regrettably, while development projects aim to improve socioeconomic conditions and the quality of life, in many instances their impact on health is, inadvertently, a negative one. This is particularly so when development projects are planned and executed on strictly sectoral lines. The environmental determinants of health are then bound to be overlooked.

Throughout the tropics, the mosquito and snail breeding sites that are created by environmental changes associated with development, together with the spread of diseases resulting from human migration, form a dangerous blend in which malaria, schistosomiasis and other vector-borne diseases may thrive. As a consequence of development, vector-borne diseases spread into areas where they were not recorded before, the number of cases soar due to increases in the transmission level or to extension of the transmission season, or the increase in the parasite load causes clinical symptoms to become more severe, as in the case of schistosomiasis.

Malaria cases in Brazil, for example, now account for more than half of the total number in the Americas, largely as a result of the opening up, deforestation and mining in the Amazon region. Large dams and water reservoirs that were built in Africa and Asia for irrigation or hydropower in the 1960s and 1970s led to disastrous effects with upsurges in cases of schistosomiasis, malaria and Japanese encephalitis. Such projects have frequently led to the introduction of new diseases into an area, as in the case of intestinal schistosomiasis in the Senegal River delta following the construction of the Diama dam. The new availability of water for domestic purposes or for irrigation may further aggravate the situation, particularly if water sources are not accompanied by facilities for drainage, water management or proper sanitation.

The problems are not restricted to the rural environment. Urbanization, precisely because of its uncontrolled spread, has its own share of environmental and vector-borne disease problems. In the Indian subcontinent, where one of the local vectors prefers to breed in roof tanks for drinking-water, urban malaria has increased in those cities where building standards are not enforced. More widespread is the threat of dengue and dengue haemorrhagic fever, transmitted by mosquitos that breed in small water containers in and around the house.



Difference in approaches. The upper flow diagram shows how projects are assessed for their combined impact on health (B) and environment (A). In the lower diagram, health (C) is assessed in terms of opportunities, and is separated from the environmental impact assessment (A). Health is thus one of the objectives of the project. (Adapted from D. J. Bradley, 1991).

Communication gap

Techniques do exist to alleviate the impact of water resource development on vector-borne diseases, but these are insufficiently applied. Appropriate design, operation and maintenance of water reservoirs and irrigation schemes, based on environmental management principles, have long-term effects. Moreover, they are often consistent with good agricultural practices. They are worth the investment, but many conditions will have to be met at national and local level to incorporate these measures. There is an obvious communication gap between the health, agricultural, water, energy and planning sectors. Political will and enforceable legislation are equally required to facilitate intersectoral collaboration. In addition, there is usually a need for financial investment that cannot be borne by the populations at risk.

Impact on health

Increased environmental awareness has persuaded an increasing number of governments, as well as bi- and multilateral donors and development agencies, to require an *environmental impact assessment* to be incorporated in the feasibility studies of larger projects. Such assessments usually include a health component, but in a way that is often far from ideal since they single out health as a specific sectoral responsibility. As a result, recommendations may not go beyond strengthening curative health services and do not address the integration of preventive measures, directed towards safeguarding health status, into the project design.

Some donors and national governments require a specific *health impact assessment* for projects in areas that appear particularly vulnerable to vector-borne diseases. Donors and national governments increasingly look at problems in a more holistic way, although by and large this trend remains to be translated into a better collaboration between the various relevant sectors. More efforts are being made in malaria control programmes to increase the protection of risk groups. The health assessment methods now becoming available mark a significant improvement over the laissez-faire attitude of the past.

Unfortunately the requirement for a health impact assessment may ultimately prove to be inadequate, however well the methodology is developed. Firstly, it will only be used in those situations which call for external funding. Little is known about the effects of small-scale developments which are internally or privately financed and which, through their sheer numbers, may have a larger overall health impact than big multi-million dollar construction projects.

Secondly, health impact assessment is limited by our understanding of the micro-epidemiology of vector-borne diseases, that is, we cannot adequately use our understanding of the relative importance of the underlying determinants of disease in a given situation to predict the impact of development projects with accuracy. Thus we can now explain *why* a particular irrigation scheme has led to increased malaria, but complexities in forecasting such effects are illustrated by the different impacts of irrigation on malaria epidemiology in Africa. Research in several West African countries found a higher prevalence of malaria infection in some areas with irrigated rice cultivation, yet others where it resulted in a lower prevalence. In the Gambia, it has been shown that irrigated rice cultivation leads to an extension of the period in which breeding sites are available, thus resulting in a second seasonal peak in malaria mosquito breeding, yet without an obvious increase in malaria, as might have been expected. In Burundi, on the other hand, the higher relative humidity in ricefields is thought to extend the lifespan of the vectors, resulting in an important increase in cases at the end of the transmission season.

Lastly, health assessment of a project will have a better chance of influencing decisions when the health benefits are translated into economic terms. To include health into the appraisal of a project, the outcome of the economic analyses must be standardized. This can only be done by applying a cost-benefit analysis which expresses benefit in monetary terms. In reality, it is impossible to express good health in such terms. More importantly, the additional cost of environmental management measures weighs heavily on the economic viability of new projects without contributing to their monetary benefits. With the internal rate of return of most irrigation development only marginally positive, the introduction of health safeguards is likely to be critical in determining

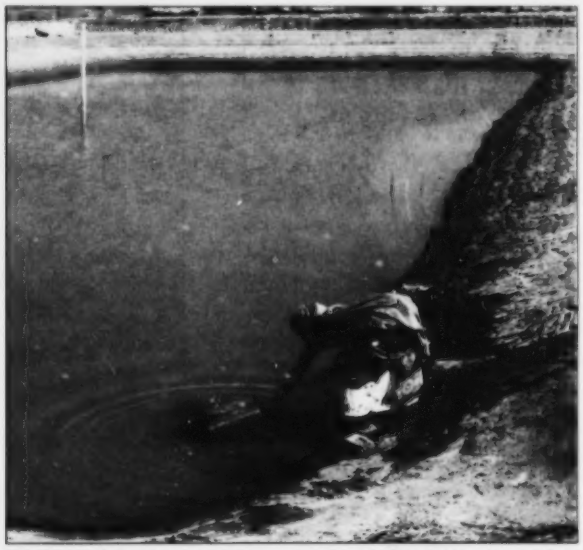
project feasibility in conventional appraisals.

Benefits versus damaged health

The governments and institutions that finance water resource development projects thus face a dilemma: when decisions have to be taken, a possible deterioration in local health conditions has to be weighed against the expected benefits of improved food security, employment and the stimulation of a local money economy. Use of environmental and health impact assessments, coupled with economic evaluation, will undoubtedly soften the impact of development projects on health. These techniques will have to be further developed, and our understanding of the micro-epidemiology will have to be improved, to make maximal use of them. It has been rightly argued that a more positive *health opportunity assessment*, instead of health impact assessment, would make more adequate use of the opportunities for vector-borne disease control and prevention, and indeed, result in broader consideration of all kinds of health promotional measures as part of development projects. Major improvements can often be made in health with relatively few extra resources, provided health improvement is seen as part of the overall objectives of development rather than as an obligation to repair the damage that is done. Such a view would ensure that health is given a more just ranking in the development priorities of many countries. ■

Mr Hans Verhoef and Mr Robert Bos are both with the WHO/FAO/UNEP/UNCHS PEEM Secretariat, Community Water Supply and Sanitation unit, Division of Environmental Health, WHO, 1211 Geneva 27, Switzerland.

A dam brings irrigation waters to a valley in rural India.



Safe water should be considered as a basic human right.

Environmental management to safeguard health

PEEM – the Panel of Experts on Environmental Management for Vector Control – is a joint activity of the World Health Organization, the Food and Agriculture Organization of the United Nations, the United Nations Environment Programme and the United Nations Centre for Human Settlement (Habitat). Its task is to promote inter-agency and inter-institutional collaboration which will ensure that environmental management measures are incorporated in land and water resources development as health safeguards.

PEEM has developed into an active global network of 46 experts and 12 collaborating centres, with a variety of disciplinary backgrounds, but all of them contribute to the goal of health promotion in the context of development. Since 1991 a more field-oriented approach has been adopted by the Panel and this is reflected in the PEEM medium-term programme: planned activities until 1995 are listed under three headings – promotion, policy modification and technical cooperation; research and development; training of various target groups.

Recent PEEM activities include running a two-week training course on "Health opportunities in water resources development" in Zimbabwe; holding a series of workshops on the promotion of environmental management through agricultural extension programmes; developing research initiatives on the relationship between irrigated rice production and vector-borne diseases (to be included in the programmes of the International Rice Research Institute and the West Africa Rice Development Association); and producing guidelines for cost-effectiveness analysis of vector control.

For further information, write to: the PEEM Secretariat, WHO, 1211 Geneva 27, Switzerland.

Unemployment and health

Stephen J. Watkins

All the available research tends to prove that unemployment is harmful to health, even when allowance has been made for alternative explanations. Public policy needs to take account of this undeniable fact of life.

Unemployment: a source of unbearable stress and potential psychosocial disorders

Unemployment creates poverty which is in turn a major cause of ill health. People who are obliged to follow the cheapest diets have little scope for healthy eating – wholemeal bread, pure fruit jams, low-fat meats or sausages, and products low in salt are all more expensive than the less healthy alternatives. Some of these products may only be available in health food shops or in the larger supermarkets which are often accessible only by car.

Poverty is related to disease. For example, deaths from coronary heart disease – according to a study in 1973 – can be directly related to the weather, increasing and decreasing as the temperature falls and rises. Poor people are at risk because they are less likely to be able to afford heating. Pleasanter environments have more expensive housing and this too has a bearing on health; people who live amidst countryside or near parks are more likely to take exercise, while road accident risks are higher among children who do not have gardens to play in.

Unemployment also creates stress by disturbing such important psychological elements as personal identity, time structuring and sense of self-esteem. It may also disrupt social support networks through the loss of social relationships at work, the abandonment of hobbies and social life under financial pressure, and withdrawal from social interaction because of the stigma of being jobless. Research has shown that reduced strength of social networks increases mortality. Unemployment is also a life change, and there is plenty of evidence to show that life changes damage health until the individual readjusts. On the other hand, people are not expected to adjust to unemployment; if they do, they are described as "work shy."

All in all, it is not surprising that evidence shows unemployment to be damaging to health. Correlations have been found between unemployment rates and death rates in time trends, in large geographical areas and in small geographical areas. However, all of these correlations are open to alternative explanations. In a number of time trend studies that have been made, unemployment rates have been seen as a good indicator of recession. So a correlation between unemployment rates and rates of ill health in time trends could merely mean that recessions damage health, perhaps through their effects on working conditions, on the quality of public services, or on general levels of stress in society.

In geographical studies, unemployment rates are a good indicator of multiple deprivation.

Surveys in various towns have shown that areas of a given town with high unemployment rates have high death rates and sickness rates, which could be related to the effects of deprivation rather than to unemployment in itself. Or it could be accounted for by selection since unemployment falls disproportionately on various unhealthy groups, such as low social classes, workers in declining industries, and people living in areas with multiple deprivation. However, a few studies – for example, one made in 1982 on the health of unemployed middle-aged men in Great Britain – have meticulously excluded these intervening factors and yet have still shown the relationship between unemployment and ill health.

As the exclusion of such factors is difficult and never perfect, the most relevant surveys are those which follow the health of a cohort of people and take account of the various confounding factors. These studies have indeed confirmed that unemployment is damaging to health. Research into the effects of factory closures have generally confirmed findings dating back to 1968 that the health of workers deteriorates from the time the closure first threatens until the time when the workers find alternative jobs and settle into them. A few of these studies have found the reverse, but they concerned the closure of factories where working conditions have been particularly poor, showing that certain types of work can be even more damaging to health than unemployment.

The factory closure surveys have been reinforced by studies which have followed the health of a cohort randomly drawn from the general population. One of the best of these, made in 1980 in a north of England city, followed the employment experiences and mental health of a group of school-leavers from even before they left school and before they knew whether or not they would get a job. The group who became unemployed had worse mental health whilst unemployed, but there was no difference between the two groups while they were at school, indicating that the poor mental health was not the cause of the unemployment but rather was precipitated by it.

Accordingly, it is no longer reasonable to base economic, social and public health policy upon any assumption other than the proposition that unemployment is harmful to health. Measures to cope with the potential health damage of unemployment can be taken at four levels.

- To conduct the economy so that recession is avoided – this is essentially an issue of economic policy.
- To structure the economy so that people enjoy satisfactory incomes and meaningful life roles even during a recession – this can be done by work sharing or job creation schemes; society does not benefit if people who are able and willing to contribute usefully to it are prevented from doing so.
- To support the unemployed – for example, support centres and unemployment groups can provide substitute social support, and social security can provide alternative incomes, while food cooperatives or credit unions are possible ways of helping people to cope with low incomes.
- To plan health services so as to meet the health damage that occurs.

My personal opinion is that none of these four levels of intervention is at present being undertaken as well as it would need to be in order to constitute a serious public health response to a major risk factor. ■

Dr Stephen J. Watkins is Co-Convenor of the UK's Unemployment, Economics and Health Study Group; he is Director of Public Health, Stockport Health Authority, Bramhall Moor Lane, Hazel Grove, Stockport SK7 5AB, UK.

Plumbers, painters and odd-job men offer their services by the roadside in Mexico.

Young people looking for jobs in Europe.

Preventing blindness in Zambia

John Madeley

An imaginative project is under way in Zambia to combat nutritional blindness by encouraging people to produce and eat more of the foods that contain vitamin A and carotene. Although still in a pilot stage, the initiative is likely to develop into a full-scale project in 1993.

Shortage of vitamin A is a major cause of nutritional blindness in babies and young children. Every year about half a million young people go blind simply because their diets do not have enough of the vitamin. But blindness is only the first symptom; if the victims do not receive immediate treatment, around two-thirds of them will die of nutritional deficiency.

There is no need for this suffering to continue. Foods to prevent vitamin-A deficiency can be grown on farms, in urban backyards or tiny garden plots, and even on window-ledges. Vitamin A is also present in fish, liver, milk and eggs; but many other foods contain carotene, which can be converted to vitamin A in the body. These include dark-green leafy vegetables – spinach and cabbage, for example; orange and yellow vegetables such as carrots and pumpkin; yellow (non-citrus) fruits and red palm oil. In recent times, the poverty of many of the world's subsistence farmers has led them to pay little or no attention to growing foodstuffs with vitamin A and carotene.

The UN Food and Agriculture Organization (FAO) is cooperating with WHO, UNICEF, UNESCO and other UN agencies in a ten-year action programme to control and prevent vitamin-A deficiency. FAO's contribution to the programme is "to increase the production of vitamin A and carotene rich foods and ensure their increased consumption".

Growing cabbages in southern Africa: a rich source of vitamin A

In September 1991, FAO started a one-year technical cooperation programme in the Luapula valley of Zambia to tackle the problem of vitamin-A deficiency. The root crop cassava is the main staple food for the half-million poor people living in the valley. While cassava is drought-resistant and high in energy content, it is low in protein.

Chronic eye defects

A survey carried out in 1988 in one of the valley's three districts found that 64.7% of children suffered from chronic malnutrition; vitamin-A deficiency showed up "dramatically in eye defects", according to FAO. Local people have a name for night blindness – a common indicator of vitamin-A deficiency when a child has difficulty seeing in poor light; they call it "kafifi". The existence of a special name suggests local awareness of the problem.

The programme engaged specialists in nutrition, horticulture and oil palm as consultants. After field visits, they pointed to the need to increase production of certain crops, especially vegetables and fruits that are rich in vitamin A, as well as groundnuts and palm oil. They also proposed an information programme to educate the public on the link between nutrition and eye disease.

Making people aware of the link between diet and eyesight is a crucial first step to preventing youngsters from going needlessly blind.

Before long, nutrition was incorporated into the training of primary-school teachers, agricultural assistants, crop husbandry officers and community development workers. Training materials emphasized that vitamin-A deficiency usually exists as part of a multiple deficiency problem, and that nutrition education has to aim at improving the intake of all nutrients. Smallholders were encouraged to grow different varieties of indigenous vegetables that are rich in carotene, while 16 demonstration plots at village and household level, and also in primary schools, showed them how.

The programme is trying to ensure that 95% of families in Luapula valley have carotene-rich foods in sufficient quantities for at least six months of the year. It puts particular emphasis on improving the consumption of these foods by pregnant and lactating women and pre-school children. Women's organizations for horticultural development, schools and the mass media channels play their part in disseminating information

and demonstrating methods of getting the best results.

Fruit tree nurseries are being established to produce high-quality fruit trees and oil palm seedlings to supply farmers, and there are plans for a seed bank for traditional vegetables. Agricultural extension staff in the valley are being trained to determine the extent of vitamin-A deficiency in their area, and to promote the production and consumption of carotene-rich foods.

One year after this pilot project started, much more food with vitamin A and carotene was being grown in Luapula valley and many more families were aware of the connection between diet and blindness. In this underdeveloped area of Zambia, a start has been made on reversing the factors that cause babies and young people to go needlessly blind. ■

Mr John Madeley is Editor of the magazine International Agricultural Development. His address is 19 Woodford Close, Caversham, Reading RG4 7HN, Berkshire, UK.

Educating mothers about nutrition ...

... ensures a healthy diet for children.

Ill-health retards development

Better health is desirable as an end in itself. But it also brings substantial economic benefits – releasing resources that can then be used to achieve other development goals. Better health and nutrition raise workers' productivity, decrease the number of days they are ill, and prolong their potential working lives.

Household survey data from nine countries suggest that the economic effects of illness may be substantial. An average adult worker in Peru can expect to be ill 4.5 days a month and miss about one day of work as a result; in Ghana, the corresponding figures were 3.6 and 1.3 days. In the USA, workers aged between 18 and 44 years miss, on average, a quarter of a day's work a month, which equals 3 days a year! Diet, too, influences productivity: in Sierra Leone, a 10% increase in the caloric intake of farm workers who consumed 1500 calories a day raised output by 5%. Similar results have been found among Kenyan road construction workers with a daily intake of 2000 calories.

The potential income loss from illness in eight developing countries ranges from 2.1% to 6.5% of yearly earnings. Reducing illness obviously requires financial resources, but these figures suggest that it might yield a large benefit even in narrow economic terms, quite apart from its human benefits. Potential loss of earnings is only a partial measure of output loss. The full cost would include the value of lost non-market work (such as child care and food preparation), foregone earnings of other household members, costs of treatment, and so on. In short, the strictly economic case for taking effective steps to improve health is strong.

Health and nutrition also have long-term effects on productivity and output because they influence a child's ability and motivation to learn. Among Nepalese children, height-for-age – a measure of nutritional history – was found to be the most important factor, after family income, in explaining school enrolment and the grade attained. In the Philippines, weight-for-height was a significant predictor of performance in mathematics tests among urban schoolchildren. These effects, in turn, influence adult productivity. Studies in south India and the Philippines suggest that the long-term contribution of nutrition to wage-levels can be large and positive.

Source: World Bank, World development report 1991.

Silicosis kills

Richard A. Lemen & Terry P. Hammond

The National Institute for Occupational Safety and Health (NIOSH) in the USA has identified three modern occupational epidemics – problems that have been rising inexorably in recent years. They are cumulative trauma disorders, indoor environmental problems, and occupational stress. NIOSH Director J. Donald Millar has termed these problems "occupational obscenities", for there is no scientific excuse for the loss of life due to any of them.

Silicosis is undoubtedly high on the list. There is no excuse for its persistence throughout the world. The cause of silicosis has been known for centuries – it is caused by breathing in fine particles of crystalline silica – and even today workers become disabled and die from this disease. Once silica particles enter the lung, they become trapped, and swellings (or nodules) form around them. As the condition worsens, the nodules grow progressively larger and breathing becomes increasingly difficult. Eventually the worker may die of respiratory failure. Because of the ambiguity of the symptoms – cough and shortness of breath – silicosis is frequently misdiagnosed as bronchitis, emphysema, or tuberculosis. Once correctly diagnosed, there is little hope for recovery. There is no cure, and the only known treatment for advanced silicosis is a lung transplant. This high-risk procedure costs more than US$ 300 000.

A worker in China's carbon black industry.

Oxygen life support

Each and every diagnosis of silicosis demonstrates the continuing toll of this clearly preventable disease. In January 1992, NIOSH learned of the premature death from silicosis of a 55-year-old sandblaster; a subsequent study of the worksite found several additional workers with silicosis. One of them, a 37-year-old man, now spends his time at home connected to an oxygen tank. "I had never heard of silicosis," he said. "There was one other man there who had died, but the boss told us he died of tuberculosis. We never thought of silicosis." He had been experiencing discomfort for about a year, but could not afford to see a doctor. "I had shortness of breath when I walked uphill and difficulties like that. It really got bad in the winter; with a cold wind blowing I couldn't walk. I was struggling just to move."

Common occupational hazard

Unfortunately, this story is not unique. Thousands of workers become afflicted with the disease each year throughout the world, many of whom have no knowledge of the disease which plagues them. Due to limitations in reporting systems and data collection, we are unsure how many victims silicosis has claimed or how many workers remain at risk of developing this disabling disease. Silica is the most common mineral on the earth's surface and is used in many common industrial practices, such as sandblasting, polishing, and grinding. Apart from mining and quarrying, stone cutting and construction, and the production of glass, ceramic and foundry molds, silica exposure may occur in some unexpected settings. Farmers are potentially exposed during ploughing and harvesting, and

loggers are at risk while working in areas contaminated with volcanic ash. South African women are exposed while using grindstones made of sandstone to grind maize and corn. Dry-wall finishers, pharmaceutical employees, and tobacco product manufacturing workers are also at risk.

WHO statistics show that silicosis remains a threat to workers throughout the world. In 1990 China reported 23 562 cumulative cases, and in 1991 Czechoslovakia reported 1177 newly recognized cases. Colombia estimates that 1 800 000 workers remain at risk, while India puts the figure at 1 689 000. Estimates in the USA suggest 3.2 million workers are potentially exposed to silica. Documented exposure worldwide is phenomenal, and each of the numbers represents a human being unnecessarily at risk.

The hazards of silica have been recognized since classical times, and were in fact documented by both Hippocrates and Pliny. In the 1550s Georgius Agricola (the "father of mineralogy") described a mining community in the Carpathian mountains where, because the men worked in local mines and died of pulmonary disease at very young ages, the women would often have as many as seven different husbands in their lifetime.

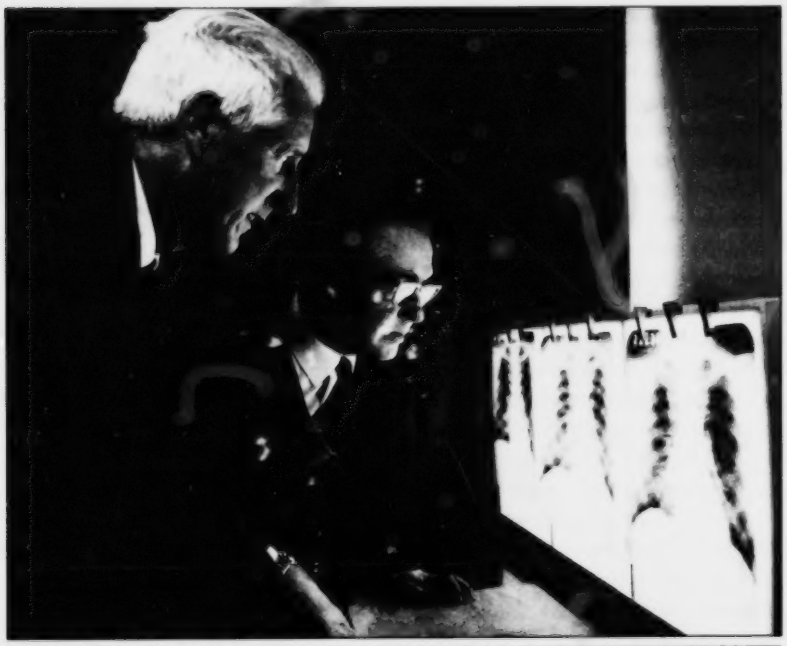
Worst industrial disaster

In the USA, silicosis first received widespread public attention in 1936 when as many as 1500 men died near the town of Gauley Bridge, West Virginia, as a result of breathing in silica dust. The incident has been called "America's worst industrial disaster." These men were asked to tunnel through a mountain of almost pure silica, even though the health effects of silica exposure had been documented for decades. No safety precautions were taken.

To combat this preventable disease, NIOSH recently released two nationwide informational "Alerts" to warn workers of the hazards associated with sandblasting and rock-drilling, two extremely high-risk occupations. These documents describe 122 cases of silicosis and outline crucial steps for preventing exposure during blasting and drilling. Sixteen of the workers mentioned above have already died, and the remaining 106 may eventually die from the disease or its complications. We must act now in order to prevent further death and disability.

To prevent silicosis, NIOSH recommends that exposure to all forms of silica be reduced to a concentration below 50 µg per m^3 as a time-weighted average for a 10-hour workday and 40-hour working week. There must also be good work practices, better management and worker training programmes, as well as labelling of the materials used. We have the knowledge and the tools to prevent silicosis today. What it will take now is conviction and collaboration. NIOSH has already begun work with WHO and the International Labour Organisation for the global elimination of silicosis, and both organizations have expressed interest in distributing the NIOSH "Alerts" worldwide. Silicosis can and must be eliminated. ■

Dr Richard A. Lemen is Deputy Director of the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control, 1600 Clifton Road, Atlanta, Georgia 30333, USA, and Ms Terry P. Hammond is a Public Affairs Specialist, also at NIOSH.



Looking for telltale signs of silicosis on the lung X-rays of Chilean miners

Workers' health and recommended exposure limits to silica

Workers exposed to coal-mine dust or other silica-containing dust should be subject to regular and systematic medical examination and chest radiography. The health-based exposure limits for free crystalline silica and coal-mine dust are recommended as time-weighted average (8-hour shift, 40-hour working week, 35-year working life) concentrations of respirable dust (defined by percentage of particles of diameter from 1.5 µm to 7.1 µm) sampled in the breathing zone (i.e., 60-cm sphere around the worker's head).

The tentative recommended exposure limit for free crystalline silica is 40 µg of silica per m^3. For coal-mine dust with a free silica content higher than 7% (mass) of the respirable mixed dust fraction, the limit for free crystalline silica should be applied (i.e., 40 µg of silica per m^3).

Source: WHO Technical Report Series No. 734, 1986 (Recommended health-based limits in occupational exposure to selected mineral dusts (silica, coal): report of a WHO Study Group).

Diseases of affluence

V. Ramalingaswami

Health education about the dangers of smoking has not reached this young mother in Nepal

Time is of the essence if the developing world is to avoid the disasters that unhealthy habits and life-styles have afflicted on the industrialized countries.

Diseases of affluence refer to those so-called chronic "degenerative" diseases whose incidence has been rising conspicuously in industrialized societies as incomes have risen, as living standards have gone up and even as health indices have improved. Mortality rates in younger age groups have fallen to low levels, and life expectancy at birth has increased substantially. In those societies today, deaths under the age of 40 are mostly avoided and maternal death is an extremely rare event; on the other hand, deaths above 40 are dominated by the diseases of affluence – particularly cardiovascular diseases and cancer. Increases in living standards and life expectancy have generally been accompanied by behavioural risk factors such as increased tobacco and alcohol use, greater consumption of saturated fats, cholesterol, and dietary calories and decreased physical activity.

Many developing countries registering rapid economic growth are today poised to experience the same post-transitional phase in their health evolution as the industrialized nations. So history is set to repeat itself.

But it need not and should not be allowed to. Through public education, enabling services and life-style changes, many developed countries have now achieved dramatic reduction in mortality rates from these diseases of affluence. Tobacco-free life-styles, balanced and health-promoting diets, and regular physical activity have played an important role. For example, in the USA, coronary heart disease now claims 40% fewer lives than in 1975 and strokes 55% fewer lives; similar reductions have taken place in Australia and Canada.

Tobacco consumption fell by 2–3% a year over the past decade in the USA, but the decline in smoking in rich countries is more than offset by its rise in poor countries. Tobacco is already causing three million deaths a year and, on present smoking patterns, seven million people a year may be dying by 2025. As the 20th century closes, developed countries are entering a phase in which coronary heart disease, strokes and even cancer will diminish as threats to longevity and quality of life. Meanwhile developing countries, with the addition now of the countries of central and eastern Europe, will be in a phase of rising incidence of these diseases.

Time is of the essence. The knowledge we possess today about the prevention of diseases of affluence is reasonably sufficient to be put to social use. To be sure, not all the answers are in yet, nor has the response to programmes of reduction in these diseases been uniform in all countries. But the consequences can be grave if we wait for absolute proof of absolute good.

Developing countries have a valuable opportunity to formulate policies and programmes in food and nutrition, in habits and in life-styles to inhibit the advance of diseases of affluence. There is an obligation to use public health knowledge in an anticipatory way for preventive and promotive action – and equally an obligation to use that knowledge in an equitable way. Human life-styles and human behaviour are the key to the future health of human kind. ■

Professor V. Ramalingaswami is Professor Emeritus of the All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, and Secretary-General of the International Conference on Nutrition, Rome, December 1992.

Undesirable weeds

by K. N. Panicker & Vijai Dhanda

People living in a filariasis-endemic area of Kerala, India, were persuaded to rear a certain species of fish which destroyed weeds where the mosquito vectors of filariasis were breeding; the fish also provided extra food and income.

Between the Vembanad Lake and the Arabian Sea, in southern India, lies the Shertallai region of Kerala. There, the high groundwater table forms innumerable ponds, canals and channels, which for long were the only means of transport. With the advent of main roads they fell into disuse, allowing aquatic plants to thrive uncontrolled and providing ideal breeding sites for the mosquito vectors of filariasis.

People were by and large not very aware of health; they had accepted the disease as a sort of natural phenomenon brought about by fate. Control attempts kept on failing until 1986, when the Vector Control Research Centre in Pondicherry identified community participation as the key to successful control and introduced a strategy offering incentives to people to take part directly in filariasis control.

The aquatic plants had not been considered as useless weeds. People would even grow them in ponds near their houses to use them as manure for their coconut plantations; they also believed that they kept the water cool.

Gradually, people were persuaded to destroy the weeds in their ponds and to rear fish instead, a fast-growing species which would not only feed on the weeds but would also be edible and could generate extra income. Fingerlings – baby fish – were provided free to people who expressed an interest.

Impressed by the success of this programme, the National Bank for Agriculture and Rural Development decided to take it over and offered loans to farmers wishing to make economic use of weed-infested ponds. An amount equivalent to about US$ 380 000 was made available in 1989-91. Inland fisheries soon appeared in the area. To replace the weeds as a source of manure, a nitrogen-fixing plant was introduced and grown under coconut trees. This green manure programme spread extensively in the Shertallai region.

A filariasis clinic was set up to serve people chronically infected with the disease, and care was also provided at regular health camps in remote areas. These camps conducted screening, provided drugs for filariasis and handled minor ailments. Before long, six voluntary groups were undertaking activities to eliminate filariasis from the region and improve the economy. They merged into the Filariasis Control Movement, which now encompasses more than 80 organizations with a membership of over 8000 – equivalent to one in every household in the area.

Fish help to keep down undesirable weeds and are a source of food and income

The proportion of mosquitos carrying filarial larvae has now declined to almost zero in the operational area, suggesting an effective interruption in transmission. Outside the area, by contrast, transmission remains high. As for chronic filariasis, its decline is not yet very noticeable, because the process is a prolonged one, but there is no doubt that its eventual elimination will bring brighter economic opportunities to the region and improve the people's welfare. ■

Dr K. N. Panicker is Project Chief and Dr Vijai Dhanda is Director at the Vector Control Research Centre, Medical Complex, Indira Nagar, Pondicherry 605 006, India. *This article is extracted from World Health Forum, 13(2/3): 177–181 (1992).*

Ideas for action

Creative credits

The income of families can be critical for their health. It can help them to live in a house with good sanitation – safe water and clean latrines – and to afford enough healthy food for all. Vulnerable groups of the population, and particularly the poor, need help to generate incomes. But this calls for a little imagination.

In many parts of the world, different types of credit and savings programmes have proved successful in this respect. They include commercial banks; intermediaries facilitating links between commercial banks and borrowers; parallel programmes (usually nongovernmental organizations) which obtain alternative sources of funds and provide loans directly; and poverty-oriented development banks with a more soundly-based formal structure.

In Indonesia, for example, the government's bank, Rakyat, assists micro-entrepreneurs with two plans, 25% of the loans going to women: one plan provides credit while the other stimulates savings. The programmes are also profitable for the government; the net income from the credit plan in 1989 was over US$ 20 million and the system is now self-financing. Successful rural development or micro-entrepreneurial funds have also been initiated by commercial and government banks in a number of other countries, including Ecuador, Nepal and Peru. In the USA, the South Shore Bank has made profits of US$ 1.5 million as a result of lending to small-scale enterprises in some of the poorest areas of Chicago.

Acción International, an intermediary organization, represents a network of 50 affiliates working in 12 countries in Latin America and the Caribbean, which serves over 50 000 borrowers organized in solidarity groups. Acción's major activity is providing market-rate loans and training in business skills for low-income micro-entrepreneurs. In 1990, its total lending amounted to about US$ 37.8 million.

Village associations

Small self-formed groups of poor women or men have traditionally joined together in villages in many countries for the express purpose of quickly generating savings funds and establishing longer-term emergency funds. These associations include "tontines" (annuity schemes) in Cameroon, "arisans" in Indonesia, "otu-otu" contribution clubs in western Nigeria, "susus" in Ghana and Kenya, and many others. Today many of these groups are formal structures with access to commercial banks or to government credit sources.

In the Sarvodaya Credit Scheme in Sri Lanka, the Sarvodaya centre in each village initiates the formation of village societies of mixed male and female groups. The groups go through a rigorous training period during which each member enters a compulsory savings scheme. Such savings act as collateral for loans. The Sarvodaya thereafter lends a sum of money to the society and the society in turn lends to its members, the amount lent varying according to the project the member proposes. The society charges an interest of 20% per annum on the loan, and repays Sarvodaya at 15% per annum.

The Badan Kredit Kecamatan in Indonesia, which establishes subdistrict financial boards to stimulate savings and to disburse small loans, is another example. About a third of all loans go to individuals, mainly women, and no collateral is required, but a commercial rate of interest is charged. The capital for loans is largely derived from deposit savings. This scheme has

These Indonesian women pooled their financial resources to launch income-generating projects.

reached millions of people; the key elements of its success include:

— having government backing and the support of financial institutions;
— serving areas that no other financial institutions serve;
— using the influence and guidance of village leaders, by forming decentralized credit committees, to ensure that borrowers are creditworthy.

Small loans – big benefits

The Grameen Bank, in Bangladesh, is perhaps the best-known poverty-oriented development bank. Mrs Manowara's story is similar to that of many women who have benefited from this bank's loans. Poverty forced her to drop out of school in her third year. Her first husband divorced her because her family could not provide a dowry, and her second husband was too old for farm labour, so the family had no income.

Through a village bank worker she learned about the Grameen Bank's activities and was able to form a group with four other women. Each member of the group contributed one taka a week for seven weeks to a group savings fund prior to requesting loans from the bank. Mrs Manowara was the fifth in line to receive a loan. With her first 2000 taka (about US$ 50) she invested in stocks of basic staple foods to sell to her neighbours. While she was able to repay the initial loan instalments, she found it difficult to save; so with subsequent loans, she decided to invest progressively in more lucrative enterprises. With her third loan of 2500 taka ($65) she bought used garments in another village market, which she then sold at a profit in her own village. Further loans were then used to expand her business.

After five years of assistance from the bank, Mrs Manowara can meet her family's basic needs. An 8000 taka ($207) loan from the bank made it possible for her, with the help of her family and her group members, to construct a new clay-walled, tin-roofed home and a model latrine. She has enough food to feed her family, and her children are able to attend school. She has chickens and fruit trees; she also grows vegetables, jute and paddy to supplement her income and cover the cost of medicine, clothing, festival expenses and entertainment. ■

On South Andros island, in the Bahamas, the fishermen have created their own cooperative.

Village women in Egypt are learning new skills to increase their incomes.

Adapted from Health dimensions of economic reform, *World Health Organization, Geneva, 1992, quoting from various sources.*

WHO in action

Hopes for mental illness sufferers

At least 52 million people in the world suffer from severe mental disease such as schizophrenia or severe depression. In addition, some 155 million are estimated to suffer from neuroses, about 120 million from mental retardation, and 100 million from affective disorders. Epilepsy is estimated to affect some 50 million others, and dementias to affect about 15 million. These figures provided by WHO (Division of Epidemiological Surveillance and Health Situation and Trend Assessment) show that countries are facing an imperative need to help the mentally ill and their families, which means providing care to at least an estimated 300 million people.

Young mental patient in Tanzania.

New insight into mental illness and prospects of better treatment are emerging from two WHO research projects, the biggest of their kind ever mounted. One project, supported by the Laureate Psychiatric Research Centre in Tulsa, Oklahoma, USA, as well as centres in ten countries, is a study of the long-term course and outcome of schizophrenia. A sequel to the WHO International Study of Schizophrenia which began in 1968, it will provide information about the course and outcome of illness in some 3000 people who were given the diagnosis of schizophrenia 15–25 years ago.

Schizophrenic illnesses are ubiquitous, appearing with similar incidence in different cultures, and have clinical features that are more remarkable by their similarity across cultures than by their differences. They are influenced by genetic, developmental, and environmental factors whose exact nature, interaction and relative importance have yet to be identified. The existing evidence suggests that treatment needs to be directed at both the social and biological aspects of mental illness. Patients in developing countries seem to have on the whole a more favourable course and outcome than their counterparts in the developed world. One of the aims of the study is to help explain the reasons for this difference.

The second major WHO study, which is now nearing completion, is investigating the types and frequency of psychological problems seen in primary health care in 14 countries. It began in 1989, and by 1992 some 25 000 patients aged 18 to 65 had been screened in general health services to identify people with symptoms of mental disorders. The patients were classified in different categories according to the symptoms, and, after being interviewed and diagnosed they are being followed up over a period of one year. It is expected that the results obtained in the study will lead to action programmes for the extension of mental health care into general health care in several countries, and provide the necessary knowledge and helpful techniques that are applicable worldwide.

WHO's mental health programme includes many other research activities and has a much wider focus – ranging from psychosocial aspects of health care in general to rehabilitation of people with chronic mental and neurological disorders – in recognition of the fact that mental health activities

are able to improve greatly the health of populations. It has been formulated through a process of consultation within WHO, with other United Nations bodies, with governments, the scientific community and various nongovernmental organizations. It relies for its implementation on a network of collaborating centres in more than 60 countries, expert advisory panels, nongovernmental organizations and various governmental agencies in WHO's Member States. ■

Health needs in the former Yugoslavia

All parts of the health care system in former Yugoslavia – facilities, personnel, financing and stocks – are under tremendous stress. The growing number of refugees and displaced persons places an intolerable burden on the present system. The results of hostilities have led to many psychosocial problems, especially for those directly affected by the trauma of war. It is the children, the women, the disabled and the elderly who are most in need of special services.

"The most urgent need is for life-saving medicines such as antibiotics, including drugs for tuberculosis, clinical oxygen, insulin and dialysis fluid", stated Sir Donald Acheson, former Chief Medical Officer of England and Chief Medical Adviser to the UK government, recently appointed WHO Special Representative in Zagreb. And he added: "We also need medicines which reduce extreme suffering, such as anaesthetics, analgesics and medicines for epilepsy and mental illness. There is also a great shortage of diagnostic and other types of medical equipment".

Urgent priorities before the onset of winter were supplies of clean water, nutritious food and shelter. "I and many others believe that the health crisis in this part of the world will cost many more lives than the conflict itself", declared Sir Donald. It is estimated that there are no fewer than 300 000 people in Bosnia and Herzegovina without shelter, support or health services, and this figure does not include Sarajevo. WHO's contribution to the prevention, or at least the mitigation of this catastrophe is, in cooperation with nongovernmental organizations, to organize and distribute emergency medical supplies for this area, to set up an effective monitoring system and to provide advice on every aspect of health.

WHO's stance is one of complete neutrality, said Sir Donald. "But preventable suffering, sickness and death are enemies against which WHO never stands neutral." ■

Conflict in the Balkans: nothing but ruins

Made homeless by war, their need for health services is urgent

WHO on . . .

New WHO drinking-water guidelines

Nearly 3000 million people are still exposed to water containing pathogenic organisms. Cholera, dysentery, guinea-worm infection, hepatitis, schistosomiasis, and typhoid are some of the better known killers in the catalogue of water-borne diseases. The two-year old cholera epidemic in Latin America has reminded the world that there is no dividing line between quality of water and the health status of populations. At the other end of the scale there are concerns over pesticides and industrial chemicals threatening to contaminate water sources.

WHO is reviewing its existing *Guidelines for drinking-water quality*, with the collaboration of experts from 34 countries representing all continents, as well as a number of specialists from the United Nations agencies, the European Economic Community, and nongovernmental organizations. Volume one of the new three-volume guidelines being published by the Organization should be available by mid-1993. They will include re-evaluation of such inorganic chemicals as aluminium, arsenic and copper as well as the following compounds: decomposition products, especially from pesticides; polyaromatic hydrocarbons; and by-products of chlorination and ozonization. Particular attention is to be given to chlorate, due to lack of toxicity data.

Health-based guideline values are recommended for 35 inorganic and 18 organic chemicals. In the case of pesticides, for instance, this represents a fourfold increase compared with the present edition (1984). Of particular concern are contaminants that have cumulative toxic properties, such as heavy metals, pesticides and carcinogenic substances.

For example, chemical disinfectants in water treatment sometimes result in the formation of potentially hazardous chemical by-products. However, the risks to health from these compounds are extremely small compared with the risks associated with inadequate disinfection. As regards the naturally occurring radionuclides in drinking-water, they contribute very little to the total ambient exposure.

A case in point: lead

Lead is toxic to the central and peripheral nervous system. Prolonged exposure may cause serious neurological damage, especially among infants, children and pregnant women. High lead content in drinking-water is habitually associated with household plumbing (through piping, solders and other lead-treated materials). Much more stringent guidelines for lead – 10 µg per litre instead of 50 µg – are being recommended. Lead should also be reduced in air and food.

Major health risks

The greatest health risks worldwide are directly linked to ingestion of water contaminated with sewage. According to Dr Peter Toft of the Canadian Department of National Health and Welfare, and Chairman of the meeting convened by WHO last September to review the guidelines, "Safeguarding drinking-water supplies is a major health responsibility.

Safe water makes a powerful contribution to good health.

Cholera victim in northern Bangladesh.

Different countries will, no doubt, have different priorities in their application of the guideline values. Nevertheless, we hope that all governments will find a use for the new guidelines, either in setting drinking-water standards or updating and expanding existing ones." ■

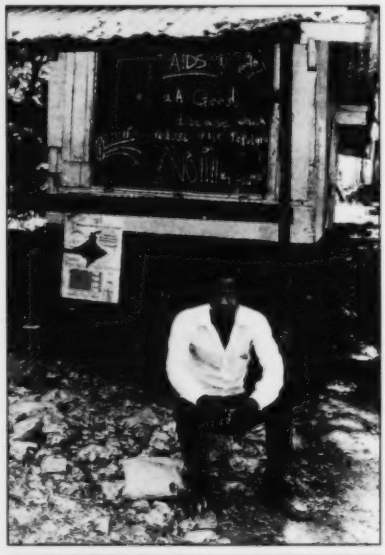
No epidemic with new AIDS virus

Initial fears of a potential epidemic of a new viral AIDS-like disease in humans have been calmed after scientific meetings in the USA last August and at WHO headquarters in Geneva, Switzerland, last September.

To date, fewer than 100 cases of AIDS-like disease or severe immunosuppression without other explanation have been found over a period of at least six years among people who are not infected with HIV. This has led scientists to conclude that there is no epidemic of a new cause of severe immunosuppression. The available evidence does not suggest that these cases are due to a new HIV-like virus or any other infectious agent that could be transmitted, including transmission through blood or blood products.

An extensive search for new cases in more than 21 countries throughout the world showed that severe immunosuppression not due to HIV infection or other known causes of immunosuppression is rare, in both industrialized and developing countries. Some cases could ultimately be shown to be attributable to temporary suppression of white blood cells, infections such as tuberculosis, or genetic conditions. Although preliminary reports suggest the presence of several different microorganisms from a very small number of cases, these findings have not yet been duplicated, and their role, if any, is unclear. No definitive evidence for any new virus causing immunosuppression exists.

According to WHO, it is important to further investigate this disease. However, the priority today is to continue to concentrate efforts and resources on the prevention and control of AIDS, in the light of WHO's estimate that HIV has already infected some 11–13 million people around the world. ■



AIDS is still an almost mythical disease. Fighting wrong ideas is part of the struggle.

Photo Credits

Cover	WHO/P. Almasy
Page 3	WHO/T. Farkas
Pages 4	WHO/UNHCR
Page 5	WHO/Zafar
Page 6	WHO/C. Powell
Page 7	WHO/L. Gubb
Page 8	WHO/ILO/J. Maillard
Page 9	WHO/ILO/J. Maillard; WHO/ILO/D. Bregnard
Page 10	WHO/L. Taylor
Page 11	WHO/G. Diez
Page 12	WHO/C. Blackwell
Page 13	WHO/M. Santis
Page 14	WHO/UNICEF/C. Watson
Page 15	WHO/L. Taylor
Page 17	WHO/I-I. Ray/Aga Khan Foundation
Page 18	WHO/Zafar
Page 19	WHO/ILO/D. Bregnard; WHO/Zafar
Page 20	WHO/J. Modeley
Page 21	WHO/T. Kelly; WHO/L. Gubb
Page 22	WHO Photo competition/Bao Qi ©
Page 23	WHO/P. Larsen
Page 24	WHO/L. Taylor
Page 25	WHO/I-I. Ray/Aga Khan Foundation
Page 26	WHO/G. Williams
Page 27	WHO/Inter-American Bank/D. Mangunon; WHO/UNICEF/S. Sprague
Page 28	WHO Photo competition/A. Andersson ©
Page 29	WHO/UNHCR
Page 30	WHO/I. Schytte
Page 31	WHO/M. Sprunt
Back cover	WHO/I-I. Ray/Aga Khan Foundation

In the next issue

Injuries and deaths due to accidents and violence affect a great number of people in the world today. WHO will devote its 1993 World Health Day – 7 April – to this important public health problem, and the next issue of *World Health* will cover many aspects of preventive action that can be undertaken. ■

Did you enjoy this issue?

Why not take out a subscription to *World Health* and enjoy reading about the world's major health issues six times a year. 1993 subscription prices are listed below.

WHO also offers its popular "Health Horizons" subscription, a combined subscription (at a reduced rate) to *World Health* and the quarterly *World Health Forum*.

Order form

- ☐ *World Health* (1993 subscription) at Sw. fr. 28.–/US$ 22.00
- ☐ Health Horizons (1993 subscription) at Sw. fr. 80.–/US$ 64.00
- ☐ Payment enclosed
- ☐ Please charge to my credit card
- ☐ Visa ☐ American Express
- ☐ Eurocard/Mastercard/Access

Card number .....

Expiry date ..... Date of order .....

Signature .....

Name .....

Address .....

.....

World Health Organization, Distribution and Sales, 1211 Geneva 27, Switzerland

Printed in Great Britain by GreenShires Print Limited, Kettering, Northamptonshire, England

FINDING PATHS TO HEALTHY GROWTH IS A CHALLENGE WHICH FACES RICH AND POOR COUNTRIES ALIKE